
CURRICULUM VITAE

Paul H. Sell

Postdoctoral Researcher

Texas Tech University
Department of Physics
Box 41051
Lubbock, TX 79409-1051

Office Phone: (806) 742-7129

E-mail: paul.sell@ttu.edu

Education

- **University of Wisconsin**, Madison, Wisconsin
M.S. Astronomy (2009), Minor in Physics; Ph.D. Astronomy (2013)
Delta Certificate in Research, Teaching, and Learning (2013)
- **University of Toledo**, Toledo, Ohio
B.S. Physics (2007) with honors (Summa cum laude) astrophysics concentration,
mathematics minor
- **Norton City Schools**, Norton, Ohio (Salutatorian)

Research Interests

- Jets and outflows (feedback) from microquasars and evolving (post-starburst) galaxies; X-ray binary populations

Research Experience

- 10/2013 – ongoing: *Calcium-Rich Gap Transients: Tidal Detonations of White Dwarfs?* — Advisor: Tom Maccarone
- 08/2011 – 08/2013: *Assessing Student Learning in the Planetarium* — Advisor: Eric Hooper
- 01/2011 – 03/2014: *Massive Compact Galaxies with High-Velocity Outflows: Morphological Analysis and Constraints on AGN Activity* — Advisor: Christy Tremonti
- 01/2010 – 08/2014: *Shell-Shocked: The Interstellar Medium Near Cygnus X-1* — Advisor: Sebastian Heinz
- 01/2010 – 04/2011: *Testing Black Hole Jet Scaling Relations in Low-Luminosity Active Galactic Nuclei* — Advisor: Sebastian Heinz
- 01/2010 – 01/2011: *Parsec-scale Bipolar X-ray Shocks Produced by Powerful Jets from the Neutron Star Circinus X-1* — Advisor: Sebastian Heinz
- 09/2007 – 04/2011: *Luminosity Functions and Point-Source Properties from Multiple Chandra Observations of M81* — Advisors: Dave Pooley and Sebastian Heinz
- 06/2006 – 08/2006: *Extended Red Emission in High Galactic Latitude Interstellar Clouds* — Advisor: Adolf Witt
- 09/2005 – 05/2006: *The Determination of Dust Opacities Using Color Asymmetries in Inclined Galaxies* — Advisor: Adolf Witt
- 06/2005 – 08/2005: *A Visible Wavelength Search for Lyman-Break Galaxies at $z\sim 3$* — Advisors: Matthew Ashby and Jiasheng Huang

- 06/2004 – 08/2004: *The Excitation of Extended Red Emission: New Constraints on Its Carrier from Hubble Space Telescope Observations of NGC 7023* — Advisor: Adolf Witt

Conferences Attended

- 2014 Winter American Astronomical Society Meeting (poster)
- 2014 X-ray View of Galaxy Ecosystems (oral presentation)
- 2013 Summer American Astronomical Society Meeting (poster presentation)
- 2012 Black Hole Feedback Workshop (oral presentation)
- 2012 X-ray Binaries Chandra Conference: Celebrating 50 Years Since the Discovery of Sco X-1 (oral presentation)
- 2012 Astronomy's Discoveries and Physics Education Conference (poster)
- 2012 University of Wisconsin-Madison Teaching and Learning Symposium (poster)
- 2012 Winter American Astronomical Society Meeting (thesis presentation, education poster)
- 2010 Accretion Processes in X-rays Chandra Conference: From White Dwarfs to Quasars (poster)
- 2009 Chandra's First Decade of Discovery Conference (poster)
- 2009 The Monster's Fiery Breath Conference (local organizing committee)
- 2006 and 2007 National Conference for Undergraduate Research (oral presentations)
- 2006 University of Toledo Sigma Xi Research Symposium (oral presentation, second place overall award)
- 2006 Winter American Astronomical Society Meeting (poster)

Honors / Awards

- 2012 Campus-wide Teaching Assistant Award for Exceptional Service, University of Wisconsin-Madison
- 2006 – 2007 Outstanding Student in Physics and Astronomy, University of Toledo
- 2006 – 2007 France Stone Scholarship, University of Toledo
- 2005 – 2006, 2006 – 2007 Ohio Space Grant Consortium Scholarship
- 2005 Undergraduate Stollberg Award, University of Toledo
- 2005 National Rube Goldberg Competition, Member of Second Place Team
- 2004 Elgin G. Brooks Memorial Scholarship, University of Toledo
- 2003 – 2007 Tower Achievement Scholarship, University of Toledo

Teaching / Advising

- Spring 2014: Instructor for Astronomy 1400 “Solar System Astronomy” at TTU
- Fall 2011/2012: Substitute Instructor at UW-Madison for Astronomy 103 “The Evolving Universe: Stars, Galaxies, and Cosmology” (for three professors and six lectures total)
- Fall 2008/2011, Spring 2013: Teaching Assistant at UW-Madison for Astronomy 103 “The Evolving Universe: Stars, Galaxies, and Cosmology”

- Co-advisor of Summer REU students at UW Madison: Emily Richards (2010), Mallory Molina (2011), Emily Moravec and Zach Griffith (2012)

Professional Service to Department and Community

- Fall 2014: Co-organizer of Texas Tech astronomy weekly group meetings
- Spring 2014: Solar observing for Cub Scout group
- Fall 2012: Guest speaker for a Madison Astronomical Society Meeting
- Fall 2011/2012: Organizer and leader of weekly meetings of the astronomy graduate teaching assistants, University of Wisconsin-Madison
- Summer 2012: Interviewee for WORT 89.9 FM “In Our Backyard” Radio Show
- Summer 2012: Organizer and leader of Venus Transit Observing at the Washburn Observatory, University of Wisconsin-Madison
- Summer 2010: Observer at the Washburn Observatory for cub scout group merit badge
- 2008 – 2013: Observer for free regular public observing sessions at the Washburn Observatory, University of Wisconsin-Madison
- 2008 – 2012: Presenter and observer for the Universe in the Park program (~50 sessions)
- 2005 – 2007: President of University of Toledo's Society of Physics Students
- 2004 – 2007: Employee at the University of Toledo's Ritter Planetarium and Observatory

Grants and Successful Observing Proposals (PI/Co-I; other Co-Is not listed)

- 2014: HST “How Compact is the Stellar Mass in Eddington-Limited Starbursts?” (budget approval pending: \$138,446), Alex Diamond-Stanic (PI), **Paul Sell** (Co-I)
- 2013: Awarded donor funds (~\$5000) to purchase and install specialized video projector and surround sound speakers for the University of Wisconsin-Madison's planetarium
- 2013: Chandra “Turning Down the Noise on Circinus X-1: A Deep Look at the X-ray Jets, Shocks, and Lobes at Low Background” Sebastian Heinz (PI), **Paul Sell** (Co-I) (award amount: \$75,129)
- Fall 2012: WIYN “The Ultimate Space-Based Rail Guns: Microquasars Sending Powerful Shockwaves into the Interstellar Medium Using Jets as Relativistic Bullets” **Paul Sell** (PI), Sebastian Heinz (Co-I)
- Fall 2012: WIYN “The Final Puzzle Piece for the Jet Power of the Cygnus X-1 Shockwave” Sebastian Heinz (PI), **Paul Sell** (Co-I)
- Spring 2012: IRAM PdBI “The Highest Density Starbursts in the Universe” Hickox and Geach (Co-PIs), **Paul Sell** (Co-I)
- Spring 2012: SALT “Searching for the H α Blastwave from Circinus X-1” Sebastian Heinz (PI), **Paul Sell** (Co-I)
- Fall 2010: Keck “A Census of Galactic Winds in Post-starburst Galaxies: New Benchmarks for Galaxy Formation Models” Alex Diamond-Stanic (PI), **Paul Sell** (Co-I)
- Spring 2010: WIYN “Setting a speed trap for Cyg X-1: Measuring jet power and ISM density” Sebastian Heinz (PI), **Paul Sell** (Co-I)

- 2010: HST “Testing Feedback: Morphologies of Post-starburst Galaxies” Christy Tremonti (PI), **Paul Sell** (Co-I) (award amount: \$85,913)
- 2009: Joint Chandra/HST “After the Fall: Fading AGN in Post-starburst Galaxies” Christy Tremonti (PI), **Paul Sell** (Co-I) (award amounts: \$55,552 – HST, \$60,921 – Chandra)

Publications

- **P. H. Sell**, T. Maccarone, et al. 2015, *Case Study of a Calcium-Rich Gap Transient*, in prep.
- **P. H. Sell**, S. Heinz, et al. 2015, *Shell-Shocked: The Interstellar Medium Near Cygnus X-1*, MNRAS, 446, 3579.
- J. E. Geach, R. C. Hickox, A. M. Diamond-Stanic, M. Krips, G. H. Rudnick, C. A. Tremonti, **P. H. Sell**, A. L. Coil, J. Moustakas, 2014, *Molecular Blow Out from a Compact Starburst Galaxy Through Stellar Feedback*, Nature, 516, 68.
- **P. H. Sell**, C. A. Tremonti, et al., 2014, *Massive Compact Galaxies with High-Velocity Outflows: Morphological Analysis and Constraints on AGN Activity*, MNRAS, 441, 3417.
- S. Heinz, **P. H. Sell**, et al., 2013, *The Youngest Known X-Ray Binary: Circinus X-1 and Its Natal Supernova Remnant*, ApJ, 779, 171.
- J. E. Geach, R. C. Hickox, A. M. Diamond-Stanic, M. Krips, J. Moustakas, C. A. Tremonti, A. L. Coil, **P. H. Sell**, G. H. Rudnick, 2013, *A Redline Starburst: CO(2–1) Observations of a Compact Eddington-Limited Galaxy*, ApJ, 767, L17.
- A. M. Diamond-Stanic, J. Moustakas, C. A. Tremonti, A. L. Coil, R. C. Hickox, A. R. Robaina, G. H. Rudnick, **P. H. Sell**, 2012, *High-velocity Outflows without AGN Feedback: Eddington-limited Star Formation in Compact Massive Galaxies*, ApJ, 755, 26.
- F. de Gasperin, A. Merloni, **P. H. Sell**, P. Best, S. Heinz, G. Kauffmann, 2011, *Testing Black Hole Jet Scaling Relations in Low-Luminosity Active Galactic Nuclei*, MNRAS, 415, 2910.
- **P. H. Sell**, D. Pooley, A. Zezas, S. Heinz, J. Homan, W. Lewin, 2011, *Luminosity Functions and Point Source Properties from Multiple Chandra Observations of M81*, ApJ, 735, 26.
- **P. H. Sell**, S. Heinz, et al., 2010, *Parsec-scale Bipolar X-ray Shocks Produced by Powerful Jets from the Neutron Star Circinus X-1*, ApJ, 719, 194.
- A. N. Witt, S. Mandel, **P. H. Sell**, T. Dixon, U. P. Vijh, 2008, *Extended Red Emission in High Galactic Latitude Interstellar Clouds*, ApJ, 679, 497.
- A. N. Witt, K. D. Gordon, U. P. Vijh, **P. H. Sell**, T. L. Smith, and R. Xie, 2006, *The Excitation of Extended Red Emission: New Constraints on Its Carrier from Hubble Space Telescope Observations of NGC 7023*, ApJ, 636, 303.